GOVERNMENT OF INDIA
NEW AND RENEWABLE ENERGY
LOK SABHA

UNSTARRED QUESTION NO:707
ANSWERED ON:27.11.2014
RESEARCH INSTITUTES IN RENEWABLE ENERGY SECTOR
Birla Shri Om

Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) whether research institutes have been set up for development of renewable energy sources;

(b) if so, the details thereof, State/location -wise;

(c) the details of research being carried out by these institutes; and

(d) the achievements made by these research institutes during the last three years, institute-wise?

Answer

THE MINISTER OF STATE FOR POWER, COAL & NEW AND RENEWABLE ENERGY (INDEPENDENT CHARGE) (SHRI PIYUSH GOYAL)

(a): Yes, Madam. The Ministry of New and Renewable Energy (MNRE) has set up three specialized research institutes for development of renewable energy sources. In addition, the Ministry has been supporting research and development in different areas of renewable energy at various academic and research institutions including autonomous bodies and industries.

(b): The specialised research institutes set up by MNRE for development of solar, wind and bioenergy resources are as folows;

1. National Institute of Solar Energy (NISE), Gwalpahari, Gurgaon, Haryana (Formerly Solar Energy Centre)

2. National Institute of Wind Energy, Chennai, Tamilnadu (Formerly Centre for Wind Energy Technology).

3. Sardar Swaran Singh National Institute of Renewable Energy (SSSNIRE), Kapurthala, Punjab.

(c): The details of research being carried out by the institutes is given below;

1. National Institute of Solar Energy

The main objective of the institute is to assist the Ministry in implementing Jawaharlal Nehru National Solar Mission (JNNSM) and function as the apex National Centre for research, testing and technology development in the area of solar energy. The areas of research include solar photovoltaics, solar thermal, energy storage and solar resource assessment.

National Institute of Wind Energy, Chennai

The NIWE serves as the technical focal point for wind power development and supports the growing wind power sector in the country. The activities being carried out include wind resource assessment onshore and offshore, wind turbine performance testing, Grid connection and Power Quality, operation and maintenance, wind power development, human resource development, national and international collaborations for research & design development, NIWE has established real time network for wind resource assessment with 100m met-masts at 73 locations, and 121 automatic stations for Solar radiation resource assessment all over India. NIWE is also working on development and implementation of procedures and guidelines for orderly development of quality wind turbines besides preparation of Indian standards for wind turbines.

3. Sardar Swaran Singh National Institute of Renewable Energy

The main objective of the Institute is to carry out and facilitate research, design, development, testing, standardization and technology demonstration in bioenergy. The R&D activities include development of bioenergy, biofuels and synthetic fuels in solid, liquid and gaseous forms for transportation, portable and stationary applications and development of new technologies for effective utilization of different types of biomass.

(d): The achievements made by three institutes during last three years are given below;

1. National Institute of Solar Energy

(a) Solar Photovaltaics

Setting up of module reliability test beds

Setting up of accredited SPV modules test lab

Setting up of solar cell test and characterization lab

Setting up of roof top SPV power units

Setting up of solar hydrogen production & research facility

Setting up of advanced lighting system test lab

(b) Solar Thermal

Setting up of solar thermal system test lab

Setting up of solar water desalination plant

Setting up of solar air conditioning

Setting up of solar-biomass cold storage system

Setting up of 1 MW solar thermal power plant

(c) Energy Storage

Setting up of test bed for batteries used in solar systems
Setting up of test bed for inverters used in solar systems

(d) Solar Resource Assessment

Setting up of establishment of solar radiation measurement set up

2. National Institute of Wind Energy

Continuous health monitoring facility for components of wind turbines of 2 MW established.

Three multi-institutional research projects dealing with grid connection, power quality and blade aerofoil characteristics completed
Capacity building for acoustic measurement, power quality measurement, small wind turbine performance testing, inter-laboratory comparison of power curve measurements, establishing world's largest real time resource measurement networks for wind and solar, wind power forecasting and first offshore wind measurement at dhanuskoti, near Rameshwaram.

Over Rs.33 crores of internal revenue generated through the expertise developed, to entirely meet and sustain the salary expenditure of regular and temporary staff in the last three years.

Intangible outcome is the orderly development of over 7000 MW of wind power installed capacity in India using indirectly the expertise of NIWE scientists.

3. Sardar Swaran Singh National Institute of Renewable Energy

The laboratory infrastructure for production and characterization of biofuels has been created.

A project entitled "Integrated technology development for biodiesel production using heterogeneous catalyst" was completed successfully in 2013. Under this project a process has been developed for biodiesel production from high free fatty acid containing Jatropha curcas oil in a single step, under elevated condition.

Two numbers of highly efficient thermotolerant yeasts i.e. NIRE-K1 and NIRE-K3, for bioethanol production from ligno-cellulosic biomass have been isolated, characterized and submitted to culture bank. A process has been developed for bioethanol production from lignocellulosic materials.

A thermophilic consortium isolated and process has been developed for biogas production from paddy straw and the research under biogas area is in progress.

The testing and R&D facilities for improved biomass cookstove have been established.